

REISSUE PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:

Attorney Docket No.: 2267.547US03

Werner Scheler et al.

U.S. Patent No.: 6,000,732

Application No.: Unassigned

Examiner: Unassigned

Filed: December 14, 2001

Group Art Unit: Unassigned

For: ARRANGEMENT FOR LOCKING AND UNLOCKING A DOOR OF A CONTAINER

PRELIMINARY AMENDMENT

BOX REISSUE

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Please amend the above-identified reissue application before commencing examination on the merits as indicated below.

In the Claims

Claims 1-4 are existing in issued U.S. Patent No. 6,000,732 as follows:

1. An arrangement including in combination,
 - a container for transporting wafer-shaped objects having container walls;
 - a container door fitted in said container and comprising two walls, spaced apart from and parallel to each other;
 - recesses worked into the container walls in the region of said container door which is fitted therein;

means for locking and unlocking said container door comprising locking elements provided within said container door between said two parallel walls and being displaceable into a moved-in end position and into a moved-out end position and, when moving out, penetrate into said recesses within the container walls,

every locking element being in the form of a projection from a plate which is directed parallel to the outwardly directed wall of said container door, wherein all plates share a common drive in form of a rotatable disk driven by a motor and acting in the locking and unlocking direction for connecting rods provided for displacing the plates, the plates being fixed in the moved-in end position and in the moved-out end position by said connecting rods;

means for providing that the penetration of the locking elements into said recesses is effected along a curved path as a result of a movement of each locking element into a corresponding recess as well as in a direction normal thereto,

said means for providing a curved path further comprising structure to maintain and move every plate parallel to an outwardly directed wall of said two parallel walls of the container door by means of couplers, said couplers for every plate being parallel to each other and rotatably connected to said plate and also to said outwardly directed wall so that, as a result of the couplers, there is a predetermined distance between every plate and said outwardly directed wall in the moved-in state, which distance decreases during the outward movement until the locking element comes into contact with a contact surface in the recess against which the locking element is pressed under tension in its moved-out end position.

2. The arrangement according to claim 1, wherein the locking elements are adjacent to one another.

3. The arrangement according to claim 2, wherein one end of each connecting rod is rotatably fitted to a plate, the other end being rotatably fitted opposite thereto at a disk so as to lie outside an axis thereof, and wherein the plates are fixed in the moved-out end position by rotating the disk beyond a dead center position.

4. The arrangement according to claim 1, wherein one end of each connecting rod is rotatably fitted to a plate, the other end being rotatably fitted opposite thereto at a disk so as to lie outside an axis thereof, and wherein the plates are fixed in the moved-out end position by rotating the disk beyond a dead center position.

Please add new claims as follows:

5. A transport container for wafer-shaped objects, the container comprising:
a container for holding the objects, the container having a plurality of walls, the walls having a plurality of recesses,

a container door fitted in said container and comprising two walls, spaced apart from each other, a locking and unlocking arrangement positioned within the door and between the two walls, the locking and unlocking arrangement comprising a plurality of locking elements moveable between a moved-in state and a moved-out state, whereby in the moved-out state the locking elements penetrate into said recesses in the container walls, the locking and unlocking arrangement further comprising a plurality of couplers, the couplers each being pivotally mounted to one of the door walls and having an axis,

each locking element is coupled to a coupler whereby the penetration of each of said locking elements into a recess is effected along a curved path.

6. The transport container of claim 5 wherein the locking and unlocking arrangement further comprises a plate and each locking element is a component part of the plate.
7. The transport container of claim 6 wherein each plate has a plurality of couplers pivotally attached thereto.
8. The transport container of claim 6 wherein each plate has two couplers connecting between the wall and the plate and the couplers are configured as a parallelogram.
9. The transport container of claim 5 wherein the each locking element is rotatably coupled to a coupling member.
10. The transport container of claim 5 wherein the locking and unlocking arrangement further comprises a rotatable disk with a plurality of displacing elements each having two ends with one end of each displacing element rotatably connecting to the rotatable disk and the other coupled to the locking element.
11. The transport container of claim 10 wherein the locking and unlocking arrangement further comprises a plurality of plates and each locking element is part of a plate and each displacing element is coupled to the locking element through the plate.

12. A transport container for wafer-shaped objects, the transport container comprising a container and a door to close the container, the door comprising a pair of walls and a locking and unlocking arrangement positioned between the walls, the locking and unlocking arrangement comprising:

a plurality of locking elements extendable out of the door to engage recesses in the container, at least one locking element extending in one direction and at least one locking element extending in the opposite direction to engage recesses in the container;

a rotatable disk positioned in the door, the rotatable disk coupled to the at least one locking element extending in one direction and the at least one locking element extending in the opposite direction,

a plurality of couplers, the couplers having two ends with one end of one coupler attached to and rotatable about an axis at one of the parallel walls and the other end of said one coupler being attached to and rotatable about an axis at the at least one locking element extending in one direction, with one end of another coupler attached to and rotatable about an axis at the one of the parallel walls and the other end of said another coupler being attached to and rotatable about an axis at the one locking element extending in the opposite direction, whereby the locking elements extend outwardly in a curved path.

13. The transport container of claim 12 wherein the rotatable disk is coupled to the at least one locking element extending in one direction and the at least one locking element extending in the opposite direction by a pair of plates positioned in the door, one plate extending between the rotatable central disk and the at least one locking element extending in one direction, the other plate extending between the rotatable disk and the at least one locking element extending in the

opposite direction, each of the plates coupled to the rotatable disk such that rotation of the disk moves the plates inwardly and outwardly with respect to the rotating disk.

14. The transport container of claim 13 wherein each plate is coupled to the rotatable disk by a connecting rod extending between the disc and the plate.

15. The transport container of claim 13 wherein each plate has two couplers attached thereto and wherein each plate and the two couplers and the one of the parallel walls of the door form a parallelogram.

16. A sealable and transportable container for wafer-shaped objects, the transportable container comprising:

a container including a first wall and a second wall, one or more recesses in each of the first wall and second wall;

a door with a seal between the door and the container, the door comprising a pair of walls, an arrangement for locking and unlocking the door disposed within the door between the pair of walls,

wherein the arrangement for locking and unlocking the door comprises a plurality of locking elements extendable out of the door by a shared drive for penetration into a plurality of recesses in the container, and wherein each of the locking elements follows a curved path.

17. The apparatus of claim 16, wherein the latching assembly further comprises a plurality of couplers, each coupler rotatably connected to one of the walls with a first axis parallel to the wall

and rotatably connected at the locking elements with an axis parallel to the first axis, the couplers providing the curved path of the locking element.

18. A container door fitted in said container and having a locking and unlocking arrangement, the locking and unlocking arrangement comprising a plurality of projections, the projections each moveable between a moved-in state and a moved-out state, whereby in the moved-out state the locking elements penetrate into said recesses in the container walls, the locking and unlocking arrangement further comprising a plurality of couplers, the couplers each being rotatably mounted to one of the door walls, each projection having a coupler coupled thereto whereby the penetration of each of said projections into a recess is effected along a curved path.

19. A transport container for wafer-shaped objects, the transport container comprising a container and a door to close the container, the door comprising a pair of walls and a locking and unlocking arrangement positioned between the walls, the locking and unlocking arrangement comprising:

a plurality of locking elements extendable out of the door to engage recesses in the container, at least one locking element extending in one direction and at least one locking element extending in the opposite direction with respect to the door;

a rotatable disk positioned in the door, the rotatable disk coupled to the at least one locking element extending in one direction and the at least one locking element extending in the opposite direction; and

a connecting rod connected to the rotatable disk, the connecting rod and disk having an beyond dead center position for fixing the locking elements in a position.

REMARKS

Claims 1-19 are pending in this Application. Claims 5-19 are added by this amendment and Claims 1-4 are pending from issued U.S. Patent 6,000,732.

Support for claim 5 can be found in claim 1, Figs. 2a and 2b, column 2 lines 11-17; claim 6 in column 2, lines 33-37, and in claim 1; claim 7 in claim 1 and in Figs. 1-4; claim 8 in claim 1; claim 9 in column 3, lines 33-43; claim 10 in Figs. 1 and 4, and column 2, lines 50-53; claim 11 in column 4, lines 17-20 and Figs. 1-4; claim 12 in claim 1, Figs. 1-4, column 3, lines 33-43; claim 13 in claim 1, Figs. 1-4; claim 14 in Figs. 1 and 4 and column 2, lines 50-53; claim 15 in claim 1 and Figs 2a and 2b; claim 16 in claim 1 and column 4, lines 6-8, and column 4, lines 14-23; claim 17 in column 3, lines 38-43, and Figs. 2a and 2b; claim 18 in claim 1 and column 3, lines 38-43; claim 19 in claim 1, Figs. 1-4, and column 4, lines 1-2.

Reissue Patent Application No. 6,000,732

In view of the amendments to the Claims, Applicants believe that this Application is now in condition for allowance. If the Examiner feels that contacting the Applicants' Attorney via telephone would advance the prosecution of this case, he is invited to call the undersigned at the number given below.

Respectfully submitted,

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Please grant any extension of time necessary for entry; charge any fee due to Deposit Account No. 16-0631.

CERTIFICATE OF EXPRESS MAIL

"Express Mail" mailing label number EL671552706US. Date of Deposit: December 14, 2001. I hereby certify that this paper is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. § 1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

Scott G. Ulbrich
Name of Person Making Deposit

Scott. Uchi
Signature

ATTACHMENT
REDLINED AMENDMENT

Claims As Amended

Please add the following new claims:

5. A transport container for wafer-shaped objects, the container comprising:
a container for holding the objects, the container having a plurality of walls, the
walls having a plurality of recesses,
- a container door fitted in said container and comprising two walls, spaced apart
from each other, a locking and unlocking arrangement positioned within the door and
between the two walls, the locking and unlocking arrangement comprising a plurality of
locking elements moveable between a moved-in state and a moved-out state, whereby in
the moved-out state the locking elements penetrate into said recesses in the container
walls, the locking and unlocking arrangement further comprising a plurality of couplers,
the couplers each being pivotally mounted to one of the door walls and having an axis,
each locking element is coupled to a coupler whereby the penetration of each of said
locking elements into a recess is effected along a curved path.
6. The transport container of claim 5 wherein the locking and unlocking arrangement further
comprises a plate and each locking element is a component part of the plate.
7. The transport container of claim 6 wherein each plate has a plurality of couplers pivotally
attached thereto.
8. The transport container of claim 6 wherein each plate has two couplers connecting
between the wall and the plate and the couplers are configured as a parallelogram.

9. The transport container of claim 5 wherein the each locking element is rotatably coupled to a coupling member.

10. The transport container of claim 5 wherein the locking and unlocking arrangement further comprises a rotatable disk with a plurality of displacing elements each having two ends with one end of each displacing element rotatably connecting to the rotatable disk and the other coupled to the locking element.

11. The transport container of claim 10 wherein the locking and unlocking arrangement further comprises a plurality of plates and each locking element is part of a plate and each displacing element is coupled to the locking element through the plate.

12. A transport container for wafer-shaped objects, the transport container comprising a container and a door to close the container, the door comprising a pair of walls and a locking and unlocking arrangement positioned between the walls, the locking and unlocking arrangement comprising:

a plurality of locking elements extendable out of the door to engage recesses in the container, at least one locking element extending in one direction and at least one locking element extending in the opposite direction to engage recesses in the container;

a rotatable disk positioned in the door, the rotatable disk coupled to the at least one locking element extending in one direction and the at least one locking element extending in the opposite direction,

a plurality of couplers, the couplers having two ends with one end of one coupler attached to and rotatable about an axis at one of the parallel walls and the other end of

said one coupler being attached to and rotatable about an axis at the at least one locking element extending in one direction, with one end of another coupler attached to and rotatable about an axis at the one of the parallel walls and the other end of said another coupler being attached to and rotatable about an axis at the one locking element extending in the opposite direction, whereby the locking elements extend outwardly in a curved path.

13. The transport container of claim 12 wherein the rotatable disk is coupled to the at least one locking element extending in one direction and the at least one locking element extending in the opposite direction by a pair of plates positioned in the door, one plate extending between the rotatable central disk and the at least one locking element extending in one direction, the other plate extending between the rotatable disk and the at least one locking element extending in the opposite direction, each of the plates coupled to the rotatable disk such that rotation of the disk moves the plates inwardly and outwardly with respect to the rotating disk.

14. The transport container of claim 13 wherein each plate is coupled to the rotatable disk by a connecting rod extending between the disc and the plate.

15. The transport container of claim 13 wherein each plate has two couplers attached thereto and wherein each plate and the two couplers and the one of the parallel walls of the door form a parallelogram.

16. A sealable and transportable container for wafer-shaped objects, the transportable container comprising:

a container including a first wall and a second wall, one or more recesses in each of the first wall and second wall;

a door with a seal between the door and the container, the door comprising a pair of walls, an arrangement for locking and unlocking the door disposed within the door between the pair of walls,

wherein the arrangement for locking and unlocking the door comprises a plurality locking elements extendable out of the door by a shared drive for penetration into a plurality of recesses in the container, and wherein each of the locking elements follows a curved path.

17. The apparatus of claim 16, wherein the latching assembly further comprises a plurality of couplers, each coupler rotatably connected to one of the walls with a first axis parallel to the wall and rotatably connected at the locking elements with an axis parallel to the first axis, the couplers providing the curved path of the locking element.

18. A container door fitted in said container and having a locking and unlocking arrangement, the locking and unlocking arrangement comprising a plurality of projections, the projections each moveable between a moved-in state and a moved-out state, whereby in the moved-out state the locking elements penetrate into said recesses in the container walls, the locking and unlocking arrangement further comprising a plurality of couplers, the couplers each being rotatably mounted to one of the door walls, each projection having a coupler coupled thereto whereby the penetration of each of said projections into a recess is effected along a curved path.

19. A transport container for wafer-shaped objects, the transport container comprising a container and a door to close the container, the door comprising a pair of walls and a locking and unlocking arrangement positioned between the walls, the locking and unlocking arrangement comprising:

a plurality of locking elements extendable out of the door to engage recesses in the container, at least one locking element extending in one direction and at least one locking element extending in the opposite direction with respect to the door;

a rotatable disk positioned in the door, the rotatable disk coupled to the at least one locking element extending in one direction and the at least one locking element extending in the opposite direction; and

a connecting rod connected to the rotatable disk, the connecting rod and disk having an beyond dead center position for fixing the locking elements in a position.